

APPARATUS AND METHOD FOR MANUFACTURING FIBER GRATINGS

ABSTRACT

In accordance with the apparatus and method of the present invention an optical fiber is heated and twisted to produce a periodic modulation of the dielectric constant along the fiber axis. This structure can be used in any application that utilizes Bragg grating optical fibers. A preform is drawn through a heater and the resulting optical fiber is twisted about its longitudinal axis. The refractive index modulation in the optical fiber arises from birefringence induced by stress in the optical fiber that is twisted after being subjected to an uneven heat distribution during the drawing process. The refractive index is modulated by drawing and twisting the optical fiber from a specially constructed preform which is non-cylindrically symmetrical.